February 10.

SIR WM. R. HAMILTON, LL.D., President, in the Chair.

Rev. Maurice M'Kay, LL.D., Frederick W. Burton, Esq. R.H.A., Joseph Napier, Esq., and Thomas Hutton, Esq. F.G.S., were elected Members of the Academy.

RESOLVED,—To empower the Council, to prepare an Address of congratulation to Her Majesty, on the occasion of her marriage, and to affix the seal of the Academy thereto.

The Academy adjourned.

February 24.

SIR WM. R. HAMILTON, LL.D., President, in the Chair.

J. Huband Smith, Esq. read a paper "on the different kinds of Querns used by the Irish."

Having lately presented to the Academy, as a contribution to their collection of Irish Antiquities, an oblong quern, or corn-mill, of the most primitive form, Mr. Smith now offered some few remarks on this very ancient article of housewifery.

The circular or rotatory quern, the parent of the modern millstones, is well known to antiquarians; but the still earlier and ruder hand-mill of an oblong form, (and which, therefore, must have been used in a very slow and laborious process, by pushing the upper stone backwards and forwards upon the under,) does not appear to have been hitherto noticed, being, in fact, very rarely met with; while the round quern is of comparatively common occurrence.

The word "quern" comes directly from the Saxon or Teutonic name, with which it is identical. Another simple and domestic machine, the churn, derives its appellation doubtless from the same root; the office of both being to *separate*,—in the one instance, the meal from the husk, and in the other, the butter from the milk. It seems more than probable that the Latin verb "cerno," whose primary meaning is to *separate* or *divide*, took its rise from the operation of these very primitive implements of domestic economy. The approximation in sound will be apparent, if we pronounce the Latin letter *c* hard, as some scholars maintain we should do.

In the Celtic language the quern is denominated "Bró," and in the Welsh or British, "Breyan;" both words having the same origin as the old French verb "Broyer," from which we derive a verb not in very general use, but yet to be found in a work of standard authority, the English translation of the Scriptures, where, as it will be observed, it is met in conjunction with the operation of reducing corn to meal: "Though thou shouldest *bray* a fool in a mortar among wheat with a pestle, yet will not his foolishness depart from him." One very ancient form of quern approaches nearly to the modern mortar, the under stone being a basin supported upon a tripod.

The quern is also called in Irish *cloch-vron*, a term which occurs in the well known Glossary of Cormac Mac Cuillenan, and has been translated to signify "the stone of sorrow," having allusion to the laborious and servile occupation which in ancient times grinding with it was generally esteemed to be. That such, however, was not always the case, appears from an anecdote quoted by Mr. Smith from Professor Tennant, respecting Pittacus, king of Mitylene, one of the seven wise men of Greece, who it seems "had been accustomed in moments of unoccupied languor to resort for amusement to the grinding mill, that being, as he called it, his best gym-

nasium, or pleasantest exercise in smallest space." The memory of this fact is preserved in a song of the Grecian women, called the song of the mill, which began, "Grind mill, grind! even Pittacus, king of Mitylene, doth grind!"

In illustration of the use of the quern at an early period, Mr. Smith cited a notice of it from an ancient Irish poem, (extracted from the Memoir of Londonderry accompanying the Ordnance Survey,) by Cuain O'Lochain, who died, according to the Annals of Tighernach, in 1024: also an interesting Scandinavian legendary ballad, called the Quern song. That Shakspeare was acquainted with it, appears from the allusion in his "Midsummer Night's Dream," where he speaks of the fairy Puck as labouring in the quern.

Mr. Smith then briefly noticed a few of the many passages in Scripture referring to the hand-mill, some of which show it to have been common to the Egyptians and Philistines as well as the Jews. As to its use in modern times in Cyprus, Palestine, Hindostan, and generally throughout the East, he read passages from Shaw's and Clarke's Travels, and from the Journal of Mrs. Farrar, the wife of a missionary at Nassuck near Bombay. He also noticed an engraving in Davis's China, representing a man working a larger mill by means of a sort of handspike which he pushes backwards.

Mr. Smith then read an extract from Pennant's Tour to the Hebrides, referring to the enactment in the reign of Alexander III. of Scotland, (A.D., 1284,) prohibiting the use of the quern except during stress of weather, or in other cases of necessity: notwithstanding which, Pennant still found it there in 1772.

In Sir Walter Scott's visit to the Orkneys in 1814, he saw the quern in the house of an old woman who, practising the trade of a witch, subsisted by "selling winds" to the seamen of the neighbouring coast. And in the Shetland islands

he noticed the rude adaptation of the quern stones to the purposes of a water-mill.

From a curious book, entitled "the Montgomery Manuscripts," written about 1648, Mr. Smith quoted a description of a similar attempt in the Barony of Ardes, County of Down, in Ireland, to convert a hand-mill into one driven by water, in which "the axle stood upright, and the small stones, or querns, such as are turned with hands, on the top thereof. The water-wheel was fixed at the lower end of the axletree, and did run horizontally among the water, a small force driving it."

In conclusion, Mr. Smith pointed out the progressive improvement in the form of the quern,—from the pair of rude oblong stones, which ground the corn by simple trituration, to the rotatory mortar-shaped quern; thence to the rounded or rather hemispherical form; and concluding with the two flattened stones, similar to those used in the water-mills of the present day.

The Rev. Mr. Todd exhibited to the Meeting a *fac simile* of a remarkable papyrus roll preserved in the British Museum.

The Secretary read the following communication, entitled "Justification of Mrs. Somerville's Experiments upon the magnetizing Power of the more refrangible solar Rays."* By George James Knox, Esq. and the Rev. Thomas Knox.

Professor Morichini of Rome was the first to observe that steel, when exposed to the violet rays of the solar spectrum, becomes magnetic. Similar experiments were tried by Mr. Christie, in 1824; but the most accurate experiments upon this subject have been performed by Mrs. Somerville, in 1825, who determined that not only violet, but indigo, blue and green, develop magnetism in the exposed end of

* Phil. Trans. vol. cxvi. 1826.

a needle, while yellow, orange, and red, produce no sensible effect. As many philosophers have failed in repeating these experiments, we were induced, in the course of the summer, to undertake the investigation of this subject, "which has so often disturbed science." Having procured several hundred needles, of different lengths and thicknesses, and having ascertained that they were perfectly free from magnetism, we enveloped them in white paper, leaving one of their extreme ends uncovered. Taking advantage of a favourable day for trying experiments upon the chemical ray, (known by the few seconds required to blacken chloride of silver,) we placed the needles at right angles to the magnetic meridian, and exposed them for three hours, from eleven to one, to the differently refrangible rays of the sun, under coloured glasses. Those beneath the red, orange, and yellow, showed no trace of magnetism, while those beneath the blue, green, and violet, exhibited, the two first feeble, but the last strong traces of magnetism.

To determine how far the oxidating power of the violet ray is concerned in the phenomena, we exposed to the different coloured lights needles whose extremities had been previously dipped in nitric acid, and found that they became magnetic (the exposed end having been made a north pole) in a much shorter time than the others, and that this effect was produced in a slight degree, under the red (when exposed a sufficient length of time) strongly under white glass, and so strong under violet glass, that the effect took place even when the needles were placed in such a position along the magnetic meridian, as would tend to produce, by the earth's influence, a south pole in the exposed extremity.

Conceiving that the inactive state produced in iron (as observed by Schœnbein) when plunged into nitric acid, S. G. 1.36, or by being made the positive pole of a battery, or by any other means (which Dr. Faraday supposed to be due to a slight oxide formed on the surface, and which may

be explained by its electrical state by union with oxygen becoming disguised, and rendering it until the oxide be removed incapable of further action) might throw some light upon the nature of the electrical change produced. Experiments were instituted to this effect, which showed that no trace of magnetism could be thereby produced.

The President laid before the Academy some supplementary details connected with his "Researches respecting Vibration."

The President read to the Academy the Address of congratulation to Her Majesty, prepared by Council in pursuance of the resolution of the Academy at its last meeting.

DONATIONS.

Quarterly Journal of the Statistical Society of London. Vol. II. Part 6. Presented by the Society.

Report of the Committee of Commerce and Agriculture of the Royal Asiatic Society. 1839. Presented by the Society.

Transactions of the American Philosophical Society. Vol. VI. Part 3. Presented by the Society.

Proceedings of the American Philosophical Society. Vol. I. No. 8. Presented by the Society.

Reports of the Council of the Literary and Historical Society of Quebec, for 1835 *and* 1839.

Collection de Mémoires et de Relations sur l'Histoire ancienne du Canada d'apres des manuscrits récemment obtenus des Archives et Bureaux Publics en France.

Presented by Robt. Symes, Esq., Secretary of the Society.

The Theory of the Moon. By John W. Lubbock, Esq. V. P. R. S. &c. Presented by the Author.

Flora Batava. No. 118. 5 plates. By Jan Koops. Presented by the Author.

Ordnance Survey of the County of Mayo, in 125 *sheets.* Presented by His Excellency the Lord Lieutenant.

Barlow's Tables of Squares, &c. published under the Superintendance of the Society for the Diffusion of Useful Knowledge. Presented by the Society.

Supplement to the Introduction to the Atomic Theory. By Charles Daubeny, M. D., F. R. S. Presented by the Author.

March 16. (Stated Meeting.)

SIR WM. R. HAMILTON, LL.D., President, in the Chair.

A letter from the Secretary of State for the Home Department was communicated by his Excellency the Lord Lieutenant, informing his Excellency, that the Address of the President, Council, and Members of the Royal Irish Academy, had been laid before the Queen, and that Her Majesty had received the same very graciously.

The Secretary of Council read the following Report, which was ordered to be entered on the Minutes:

" In resigning their office into the hands of the Academy, the Council have felt it to be their duty, in conformity with the practice of other kindred societies, to present a brief Report of their Proceedings, and of the general history of the Academy during the past year.

" The Council regret to state that the financial condition of the Academy has not been an improving one. They believe, however, that this circumstance (though it must create the necessity for circumspection) will not be regarded as discouraging, when it is known to have arisen from a cause essentially connected with the welfare and vitality of the Society. The character of an association formed for the advancement of any branch of learning, must be